

CableLabs®

Subscription and Fulfillment Interfaces

**Service Measurement Summary Interface
Specification**

CL-SP-SaFI-SMSv1.1-100702

ISSUED

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Document Status Sheet

Document Control Number:	CL-SP-SaFI-SMSv1.1-100702			
Document Title:	Service Measurement Summary Interface Specification			
Revision History:	I01 – released 6/26/09 v1.1 – Released 7/2/10			
Date:	July 2, 2010			
Status:	Work in Progress	Candidate	Issued	Closed
Distribution Restrictions:	Author Only	CL/Member	CL/Member/ Vendor	Public

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- Work in Progress** An incomplete document, designed to guide discussion and generate feedback that may include several alternative requirements for consideration.
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- Issued** A stable document, which has undergone rigorous member and vendor review and is suitable for product design and development, cross-vendor interoperability, and for certification testing.
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1 SCOPE

1.1 Introduction and Purpose

This document specifies a data model and transmission protocol for delivery of service measurement summary information from an MSO system to an external entity.

1.2 Requirements

Throughout this document, the words that are used to define the significance of particular requirements are capitalized. These words are:

"SHALL"	This word means that the item is an absolute requirement of this specification.
"SHALL NOT"	This phrase means that the item is an absolute prohibition of this specification.
"SHOULD"	This word means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighed before choosing a different course.
"SHOULD NOT"	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
"MAY"	This word means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.

2 REFERENCES

2.1 Normative References

In order to claim compliance with this specification, it is necessary to conform to the following standards and other works as indicated, in addition to the other requirements of this specification. Notwithstanding, intellectual property rights may be required to use or implement such normative references.

[COM]	Common Data Types Specification, CL-SP-SaFI-COMv1.1-100702, July 2, 2010, Cable Television Laboratories, Inc.
[SaFI COM XSD]	CL-SP-SaFI-COMv1.1.0.xsd, July 2, 2010, Cable Television Laboratories, Inc., http://www.cablelabs.com/namespaces/safi/xsd/com/v1.1/CL-SaFI-COM-1.1.0.xsd
[SMS WSDL]	CL-SP-SaFI-SMSv1.1.0.wsdl, July 2, 2010, Cable Television Laboratories, Inc., http://www.cablelabs.com/namespaces/safi/wsdl/sms/v1.1/CL-SaFI-SMS-1.1.0.wsdl
[SMS XSD]	CL-SP-SaFI-SMSv1.1.0.xsd, July 2, 2010, Cable Television Laboratories, Inc., http://www.cablelabs.com/namespaces/safi/xsd/sms/v1.1/CL-SaFI-SMS-1.1.0.xsd
[VOD 1.1]	VOD Content Specification Version 1.1, MD-SP-VOD-CONTENT1.1-I06-091229, December 29, 2009, Cable Television Laboratories, Inc.

2.2 Informative References

This document uses the following informative references.

[CIP]	Campaign Information Package Specification, CL-SP-SaFI-CIPv1.1-100702, July 2, 2010, Cable Television Laboratories, Inc.
[IAF]	Interactive Application Fulfillment Summary Interface Specification, CL-SP-SaFI-IAFv1.1-100702, July 2, 2010, Cable Television Laboratories, Inc.
[IAM]	Interactive Application Messaging Specification, CL-SP-SaFI-IAMv1.1-100702, July 2, 2010, Cable Television Laboratories, Inc.
[SMSI EXMPL]	CL-SP-SaFI-SMSv1.1.0-example1.xml, July 2, 2010, Cable Television Laboratories, Inc.
[SMSI HTML]	CL-SP-SaFI-SMSv1.1.0.html, July 2, 2010, Cable Television Laboratories, Inc.

2.3 Reference Acquisition

- Cable Television Laboratories, Inc., 858 Coal Creek Circle, Louisville, CO 80027; Phone +1-303-661-9100; Fax +1-303-661-9199; <http://www.cablelabs.com/>
- Internet Engineering Task Force (IETF) Secretariat, 48377 Fremont Blvd., Suite 117, Fremont, California 94538, USA, Phone: +1-510-492-4080, Fax: +1-510-492-4001.
- W3C, <http://www.w3.org/>

3 TERMS AND DEFINITIONS

This specification uses the following terms:

Affiliate	An operational entity that performs SaFI operations with one or more MSOs.
Campaign	Provides a set of delivery plans and/or placement directions for one or more MSOs, specific systems within an MSO's footprint, as well as a set of Programmed Events within a system. A Campaign is negotiated, purchased, and managed as a single entity via campaign planning and management tools that are not in scope for the MSO interfaces. Within a Programmed Event, one or more products from predefined product families can be defined for placement by MSO delivery and/or processing.
Enhanced Program Sequence ID (EPSID)	Identifies a unique Enhanced Package or Enhanced Package Element within a specific Programmed Event.
GeoCode	Geographic Code: the geographic region which this service measurement message represents. The value in this element may indicate a ZIP Code, MSO syscode, or other encoded regional identifier.
MSO Order	The part of a Campaign Information Package (CIP) that falls within a specific MSO's advertising footprint.
Package	Provides identifiers and parameters for signaling and messaging of placement directives associated directly with the package, and also a container for one or more Package Elements. The Package creates an implicit relationship between the elements regardless of the specific content they are delivered in or when they are actually delivered to the subscriber. For example, a Package might be the complete set of enhanced elements a subscriber would encounter in a single RFI product, or a single Vote/Poll product. This is typically, but not necessarily, expressed in a single ETV or OCAP application. A Package does not necessarily need to include any interactive elements or on-display presentations at all.
Package Element	Represents a single element of an enhanced experience that can be delivered to a subscriber. It provides identifiers and parameters for any signaling and messaging of placement directives associated directly with the element.
Package Type	An identifier that selects a message set used by an application in some specific enhancement context. The EpType, qualified by the application (orgId, appID, version), identifies an external set of messages, which is generally further divided by EventID. The external form of the message-set definition is not within the scope of this document.
Programmed Event	A Programmed Event (such as a program, network spot, VOD asset, time-shifted asset, guide page, or an advertisement) represents a constrained subscriber experience that includes an enhanced experience. Each Programmed Event has a Programmed Event Identifier (PEID), which uniquely specifies the context of application lifecycle events as well as qualifies any underlying measurement or fulfillment messages generated by the enhancements delivered during the lifetime of the Programmed Event. A Programmed Event may include one or more Packages.
Schematron	A rule-based validation language for making assertions about the presence or absence of specific patterns in XML trees.
Service Measurement	Information about the reach and usage of a campaign.
Syscode	A four-character, predefined code that represents a specific zone-level cable plant.

System Order

The part of an MSO Order that falls within a single zone-specific syscode. In simple cases, all the Programmed Events, Packages, and Package Elements of the Campaign will appear within each System Order; however, this may not be true due to site capabilities, or when targeting is applied.

4 ABBREVIATIONS AND ACRONYMS

This specification uses the following abbreviations:

AMB	Application Message Block
ARB	Application Report Block
CAAS	Common Advanced Advertising Systems
CIP	Campaign Information Package
EPSID	Enhanced Program Sequence ID: an integer identifying a unique Package or Package Element within a specific Programmed Event
EpType	Enhancement Package Type
ETV	Enhanced Television
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol over Secure Sockets Layer (SSL)
PEID	Programmed Event ID: a globally-unique identifier for a Programmed Event
RFI	Request For Information
SaFI	Stewardship and Fulfillment Interfaces: a collection of interfaces defined by CableLabs to support advanced services on multiple cable systems
SOAP	Simple Object Access Protocol; as of SOAP 1.2, this no longer represents an acronym
STB	Set-Top Box
WSDL	Web Services Description Protocol

5 OVERVIEW

5.1 General Context

The service measurement summary interface provides a means for MSOs to export information about the execution of a campaign. This is typically an advertising campaign, and may include interactive components. Service measurement refers to information about the reach and usage of a campaign, such as how many viewers interacted with a particular interactive application.

5.1.1 Reference Architecture

The following diagram illustrates a systems view of the Service Measurement platform. This diagram represents an advertising-centric view of the platform, however, the Service Measurement platform is generalized such that applications unrelated to advertising can use the same platform.

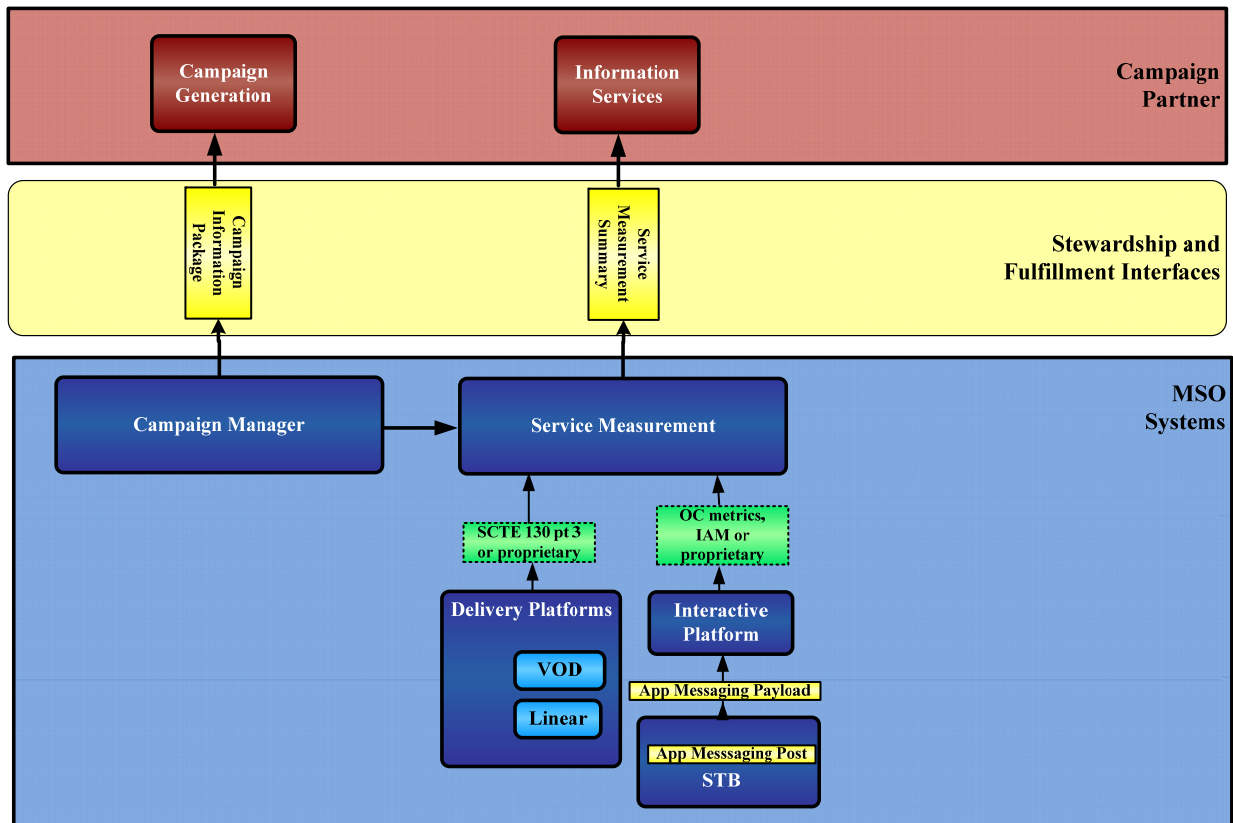


Figure 5-1 - Service Measurement platform

5.1.2 Interface Descriptions

As illustrated above, the Service Measurement architecture is composed of several components:

- Service Measurement Summary Interface. This document fully defines this interface; including the data model, content format, and transmission protocol supported by both MSO systems and partners.
- Content-delivery and interactive platforms systems feed an MSO's Service Measurement capability. SCTE-130 implementations may generate PlacementStatusNotification messages, and interactive systems generate CableLabs Interactive Application Messages (IAM). Proprietary messaging systems can also be used.

- The Interactive Application Messaging interface defines how an application instantiates a message that includes a vote/poll or RFI response and application instrumentation messages that support Service Metrics. This interface is defined in [IAM].

Note also the Campaign Information Package Interface [CIP], which provides information to MSOs for resolution and routing of Service Measurement data.

6 SERVICE MEASUREMENT INTERFACE REQUIREMENTS

This section defines requirements for metrics and the interface between a metrics engine and a cable headend.

6.1 Data Model

An XML schema is defined in Section 7 to fully describe the data transmitted by an MSO and delivered to the partners.

XML files conformant to this data model SHALL be generated by MSO systems and properly received by the partners.

6.1.1 AdPlacementSessionData

A Measurement element within a ServiceMeasurementMessage may be of type AdPlacementSessionDataType.

AdPlacementSessionDataType contains the following data unit:

- AdPlacementSessionDataPackage is zero or more objects that contain session data.

6.1.2 AdPlacementSessionDataPackage

Included in an AdPlacementSessionData object, and contains the following data units:

- ContentPackageSessionData is zero or more objects that contain session data.
- PEID is an attribute associating this element with a campaign.
- EPSID is an attribute associating this element with a line item within a campaign.

6.1.3 AdPlacementSummary

A Measurement element within a ServiceMeasurementMessage may be of type AdPlacementSummaryType.

AdPlacementSummaryType contains the following data unit:

- AdPlacementSummaryPackage is zero or more objects that contain a sum of ad placements.

6.1.4 AdPlacementSummaryPackage

An element included in ServiceMeasurementMessage objects.

AdPlacementSummaryPackage is of type AdPlacementSummaryType, containing the following data units:

- ContentPackageSummary indicates the provider and asset IDs for a piece of content, and the content type.
- PEID is an attribute associating this element with a campaign.
- EPSID is an attribute associating this element with a line item within a campaign.

6.1.5 ContentPackageSessionData

An element included in an AdPlacementSessionDataPackage object.

ContentPackageSessionData extends the ContentPackage type, and includes the following data units:

- SMSessionDataTime defines the time range for the session being measured.
- Placement is zero or more elements that describe a placement.

6.1.6 ContentPackageSummary

Included in an AdPlacementSummaryPackage object.

ContentPackageSummary is of type ContentPackageSummaryType, extends ContentPackageType, and contains the following data unit:

- Event indicates the number of placements, placement context, and an event identifier.

6.1.7 ContentPackageType

A base type extended by ContentPackageSummary.

ContentPackageType defines the following data units:

- ProviderId indicates the provider of a content element. This is described in [VOD 1.1].
- AssetId indicates a unique content element from a provider. This is described in [VOD 1.1].
- Type indicates the type of content.

6.1.8 Event

An element included in an AdPlacementSessionDataPackage object, and includes the following data units:

- PlacementCount indicates the number of placements that occurred.
- PlacementContext indicates the content, if any, that was replaced by the placement.
- EventID uniquely identifies each component or event in the application such as an overlay, a poll question, an RFI, and so on.

6.1.9 InteractivePackage

An element included in an InteractiveResponse object.

InteractivePackage contains the following data units:

- PEID (common:PeidType) is a required attribute associating this element with a campaign.
- EPSID (common:EpsidType) is a required attribute associating this element with a 'line item' within a campaign.
- EventID (common:EventIDType) is an optional attribute associating this element with a specific event generated by the application.
- ApplicationDefinitionAttributeGroup is optional, and carries application identification information and application data reference information (see [COM]).
- Result contains a Parameters attribute that represents the sum of responses of a given value. For instance, a vote application may present three choices: A, B, and C. the Parameters conveys the number of A, B, and C responses. Result also contains the TotalInterval attribute, which indicates the sum of intervals reported by all interactive application instances for this User Interface element. To calculate an average dwell time for the interactive element, divide TotalInterval by the number of interactive applications that were presented.

6.1.10 InteractiveResponse

A Measurement element within a ServiceMeasurementMessage may be of type InteractiveResponseType.

InteractiveResponseType contains the following data unit:

- InteractivePackage is zero or more objects that contain the sum of responses for a given interactive element. This is aggregated results and associated identifiers.

6.1.11 Measurement

An abstract element extended by all Service Measurement report types, including InteractiveResponse, AdPlacementSummary, and AdPlacementSessionData, and includes two attributes:

- Process indicates processing rules. Messages with this attribute set to "additive" are to be added to previously-received messages for the same time period, geocode, and campaign identifiers (PEID and EPSID). Messages with this attribute set to "overwrite" are to replace previously received messages.
- Reporting indicates whether a message is a partial or incremental data set, or is final or completes a set. If this attribute is set to "final", partner processes can assume that no more messages will be received for the

same time period, geocode, and campaign identifiers (PEID and EPSID). If this attribute is set to “partial”, subsequent messages may be received.

6.1.12 Placement

Included in a ContentPackageSessionData object, and includes the following data units:

- Ad indicates the provider/asset ID of the advertising content and the content type.
- PlacementTime is the time range during which the Placement event occurred.
- PlacementAction indicates whether a placement was an insertion or a replacement of existing content.
- TrackingId is a unique value from the SMS generator for tracking. The SCTE 130 Tracking element is one example of a value that may be passed.
- SegmentationElements indicates addressability criteria for placement.
- EventID uniquely identifies each component or event in the application, such as an overlay, a poll question, an RFI, and so on.

6.1.13 ServiceMeasurement

Provides a container for a number of specific measurement items.

ServiceMeasurement contains the following data units:

- GeoCode represents the geographic region that this service measurement message represents. The value in this element may indicate a ZIP Code, MSO syscode, or other encoded regional identifier.
- Measurement contains zero or more measurement objects.

6.1.14 ServiceMeasurementMessage

This is the highest-level container for all Service Measurement communications, and contains the following data units:

- ServiceMeasurementMessageHeaderGroup contains data common to the entire message, including the schema version number and the time at which the message was sent.
- ServiceMeasurement Element contains the geocode for the region represented by this summary, and some number of Measurement Elements.

6.1.15 ServiceMeasurementMessageHeaderGroup

Contains data common to all Measurement reports, in the following data units:

- MinSchemaVersion is the lowest version of the SMS schema that will validate this message.
- MessageTime is the reference time used in each message.
- DerivativeID is a unique identifier that MAY be included to uniquely identify a service-measurement document.

7 SERVICE MEASUREMENT DATA MODEL SCHEMA (NORMATIVE)

The formal schema is found in [SMS XSD].

8 SERVICE MEASUREMENT WEB SERVICES DESCRIPTION LANGUAGE (NORMATIVE)

The formal WSDL definition is found in [SMS WSDL].

Appendix I XML Example (Informative)

Examples of SMSI data expressions can be found in [SMSI EXMPL].

Appendix II HTML Representation (Informative)

A browse-able, graphical representation of the SMSI data model can be found in [SMSI HTML].

Appendix III Revision History

The following ECNs were incorporated into CL-SP-SaFI-SMSv1.1-100702:

EC Identifier	Date Accepted	Title of EC
SaFI-SMS-N-10.0072-1	7/2/10	Add application information to interactive result type
SaFI-SMS-N-10.0073-1	7/2/10	Add a DerivativeId type to ServiceMeasurementMessageHeaderGroup
SaFI-SMS-N-10.0074-1	7/2/10	Mandatory updates to SMS for version change
SaFI-SMS-N-10.0082-2	7/2/10	Editorial and technical updates for consistency across SaFI specs
